

TABLE III-37

Calculated Inhalation Dose at Plant Boundary (10 km)  
from Explosion in Waste Tank

Nuclide	Concentration in Supernate, Ci/l	Amount Inhaled by Active Man, $\mu\text{Ci}^a$	Dose Commitment to an Individual, rem		
			Body	Bone	Lung <sup>b</sup>
<sup>89</sup> Sr <sup>c</sup>	0.026	$5.7 \times 10^{-3}$	$6.3 \times 10^{-6}$	$2.1 \times 10^{-4}$	
<sup>90</sup> Sr <sup>c</sup>	0.026	$5.7 \times 10^{-3}$	$3.6 \times 10^{-5}$	$1.4 \times 10^{-2}$	
<sup>90</sup> Y <sup>c</sup>	0.026	$5.7 \times 10^{-3}$			
<sup>95</sup> Zr <sup>c</sup>	0.01	$2.2 \times 10^{-3}$	$3.6 \times 10^{-5}$		$4.3 \times 10^{-4}$
<sup>95</sup> Nb <sup>c</sup>	0.008	$1.8 \times 10^{-3}$	$8.0 \times 10^{-6}$		$1.1 \times 10^{-4}$
<sup>106</sup> RuRh	0.7	$1.5 \times 10^{-1}$	$4.5 \times 10^{-4}$		$1.7 \times 10^{-1}$
<sup>137</sup> Cs	2.6	$5.7 \times 10^{-1}$	$3.6 \times 10^{-2}$		$2.5 \times 10^{-1}$
<sup>144</sup> CePr <sup>c</sup>	0.53	$1.2 \times 10^{-1}$	$7.6 \times 10^{-3}$		$1.1 \times 10^{-1}$
<sup>147</sup> Pm <sup>c</sup>	0.07	$1.5 \times 10^{-2}$	$1.1 \times 10^{-4}$	$3.0 \times 10^{-3}$	
<sup>238</sup> Pu <sup>c</sup>	$2.6 \times 10^{-4}$	$5.7 \times 10^{-5}$	$1.0 \times 10^{-2}$	$4.2 \times 10^{-1}$	
<sup>239</sup> Pu <sup>c</sup>	$2.6 \times 10^{-6}$	$5.7 \times 10^{-7}$	$1.3 \times 10^{-4}$	$5.2 \times 10^{-3}$	
		Total	$5.4 \times 10^{-2}$	$4.4 \times 10^{-1}$	$5.3 \times 10^{-1}$
			(0.054)	(0.44)	(0.53)

a. Based on 95th percentile calculations and 200 liters of waste released as <10  $\mu\text{m}$  particles.

b. Dose if considered insoluble.

c. These nuclides are present primarily in the sludge. It is assumed that this quantity exists in the supernate as colloidal particles of sludge.